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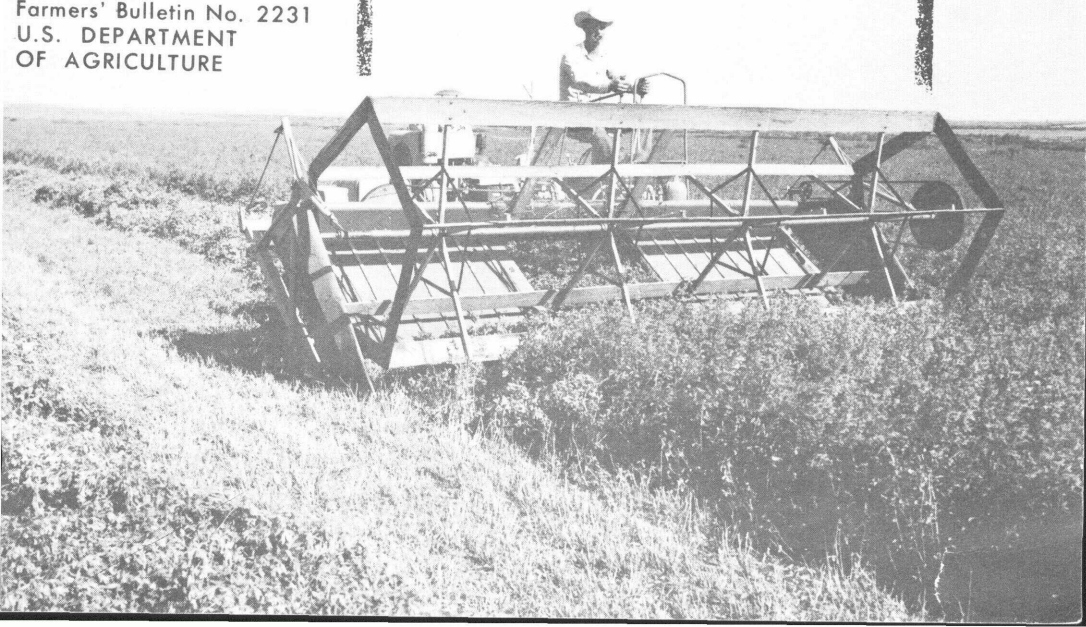
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varieties of alfalfa

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VARIETIES OF ALFALFA

About 50 named varieties of alfalfa, in addition to common alfalfa, are grown on about 30 million acres in the United States. None of these varieties or strains is adapted throughout the country; each is adapted to a limited area.

In 1966, 13 principal varieties made up about 74 percent of the alfalfa acreage (see footnote, table 1). Common strains were planted on 18 percent of the total acreage, "blends" on 8 percent. Varieties of lesser importance occupied 5 percent of the total U.S. acreage, leaving 3 percent for acres that were not identified as to variety.

PRINCIPAL VARIETIES

NOTE.—Approximate acreage and percentage of total acreage for the principal varieties of alfalfa are given in table 1. Information on area of adaptation, and on winter hardiness, of these varieties is summarized in table 2.

Buffalo.—Buffalo was developed by the Kansas Agricultural Experiment Station and the U.S. Department of Agriculture and released in 1943. Buffalo is a bacterial wilt resistant selection from Kansas Common. It is somewhat more upright and slightly quicker to recover than

Kansas Common. Buffalo is purple flowered and in other respects similar to Kansas Common.

Cayuga.—Cayuga was developed by the Cornell Agricultural Experiment Station and released in 1960. Cayuga is a wilt-resistant variety that does well under intensive management on good alfalfa soils in the Northeastern States. It is interme-

TABLE 1.—*Approximate acreage, and percentage of total, for principal varieties of alfalfa*¹

Variety	Acres	Percent of total
Buffalo.....	1, 983	6. 1
Cayuga.....	296	. 9
Cody.....	611	1. 9
Cossack.....	291	. 9
Du Puits.....	1, 012	3. 1
Grimm.....	680	2. 1
Ladak.....	1, 097	3. 4
Lahontan.....	341	1. 0
Moapa.....	320	1. 0
Narragansett.....	956	3. 0
Ranger.....	5, 723	17. 7
Sonora.....	172	. 5
Vernal.....	7, 865	24. 4

¹ From "Trends in Forage Crops Varieties," compiled in 1966 by J. R. Paulling, Federal Extension Service, U.S. Department of Agriculture.

diate in recovery growth rate between Du Puits and Vernal. Cayuga seedling vigor was less than either Du Puits or Vernal; first-year hay fields averaged one-half ton lower than Du Puits; and second-year production was equal to both Du Puits and Vernal. Third- and fourth-year yields favored Cayuga greatly, primarily because stands of Du Puits declined.

Cayuga is adapted to the Northeastern States.

Cody.—Cody was released in 1959 by the Kansas Agricultural Experiment Station and the U.S. Department of Agriculture.

Cody is highly resistant to the spotted alfalfa aphid. It was selected from Buffalo. Its growth characteristics and resistance to bacterial wilt are similar to those of Buffalo.

Cody is moderately winterhardy.

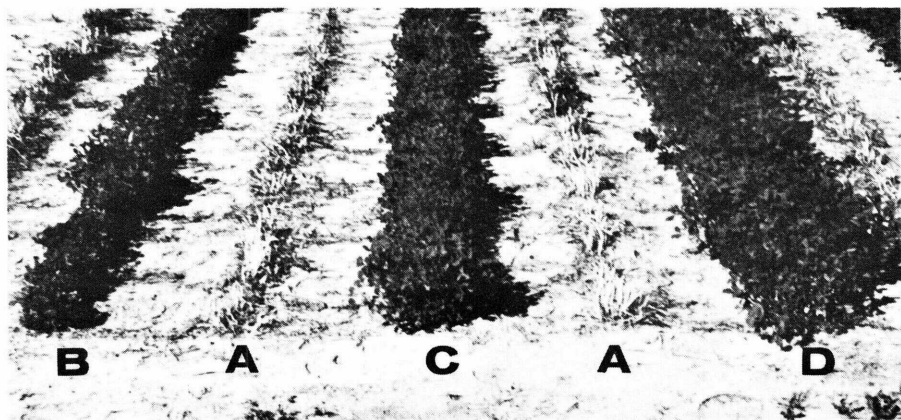
The area of adaptation is similar to that of Buffalo except that Cody can be grown where the spotted alfalfa aphid is a problem.

Common.—The term "common alfalfa" is sometimes loosely used to describe any alfalfa that is not a named variety. Thus, the term may refer to—

- Seed that was locally produced.
- Seed of unknown origin.

Generally, the term refers to strains that evolved from natural selection in States west of the Mississippi River. This is the preferred usage of the term, and the following description and comments refer only to such strains.

Strains of common alfalfa are identified by State of origin: Kansas Common, New Mexico Common or Oklahoma Common. Percentage of all strains that developed this way traces largely to alfalfa



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Differences in stands of alfalfa resulting from varietal susceptibility to the spotted alfalfa aphid. A is a susceptible variety. The others are resistant: B, Lahontan; C, a resistant experimental line; D, Moapa.



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Stands of Lahontan and Ranger alfalfas at Reno, Nev., show differences in susceptibility to stem nematode.

that was introduced around 1850 from Chile. In Arizona and California, common alfalfa is frequently referred to as Chilean alfalfa.

Characteristics of common alfalfa are not sufficiently distinct for a strain to be considered a variety.

Common alfalfas are upright growing and have narrow crown and purple flowers. They are susceptible to bacterial wilt.

Winter hardiness of common alfalfa varies; strains that evolved in cold climates are more winter-hardy than those that evolved in warm climates.

Common alfalfa is adapted to areas where climatic conditions are similar to those of the State of origin unless disease or insect problems are present.

Cossack.—Cossack was introduced from Russia in 1907 by the U.S. Department of Agriculture.

Characteristics of this variety are similar to those of Grimm. The

main differences: Cossack is slightly less susceptible to bacterial wilt, is slower to recover after cutting, and has a higher percentage of yellow and white flowers.

Du Puits.—Du Puits was developed in France and released to European farmers in 1937. It was received for testing in the United States in 1947.

Du Puits is a vigorously growing variety that recovers quickly after cutting. It is upright in growth and relatively stemmy. Its foliage is dark green. It is moderately resistant to certain foliage diseases, but is susceptible to crown rots and bacterial wilt. It is short lived in some areas.

Grimm.—This variety was introduced from Germany into Carver County, Minn., in 1857. It underwent natural selection in Minnesota.

Grimm is fine stemmed and leafy; it makes high-quality hay.

Most flowers are purple. It is susceptible to bacterial wilt; it cannot be expected to yield well where this disease is common.

Ladak.—Ladak was introduced from northern India in 1910 by the U.S. Department of Agriculture. It yields exceptionally well in the first cutting of the season, but not as well as most varieties in the second cutting. It recovers slowly after cutting.

Ladak becomes dormant during prolonged periods of summer drought and goes into dormancy early in the fall. It has a low level of resistance to bacterial wilt.

Lahontan.—Lahontan was developed by the Nevada Agricultural Experiment Station and the U.S. Department of Agriculture and was released by the experiment stations in Nevada and California for seed increase in 1954.

Lahontan has purple flowers. It has an upright habit of growth and recovers quickly after cutting. It is resistant to bacterial wilt, the stem nematode, and the spotted alfalfa aphid, but is susceptible to foliar diseases.

Moapa.—This variety was developed by the Nevada Agricultural Experiment Station and the U.S.



Four-year-old plots of alfalfa vary in their resistance to bacterial wilt. Left to right are Ranger, Narrangansett, and Vernal. (Courtesy of the Wisconsin Agricultural Experiment Station.)

TABLE 2.—*Area of adaptation, and winter hardiness, of principal varieties of alfalfa*

Variety	Area of adaptation	Winter hardiness
Cayuga.....	Northeastern States where bacterial wilt is a problem.	Hardy.
Cody.....	Similar to Buffalo.....	Moderately hardy.
Buffalo.....	Overlaps southern limit of Ranger and extends farther south than Ranger. Grown in a 400-mile-wide belt, with Kansas as the center of the belt.	Moderately hardy.
Cossack.....	Northern States.....	Very hardy. Much like 'Grimm.
Du Puits.....	Northeastern U.S. and Northern States in areas where winters are not severe and long-lived stands are not required.	Moderately hardy.
Grimm.....	Northern States where bacterial wilt is not a factor.	Very hardy.
Ladak.....	Northern Great Plains, particularly where moisture is limiting after the first harvest.	Very hardy.
Lahontan.....	Pacific coast and intermountain areas of the West where bacterial wilt, the stem nematode, and the spotted alfalfa aphids are problems.	Moderately hardy.
Moapa.....	Deep South and Southwest.....	Nonhardy.
Narragansett.....	Northeastern and North Central States where bacterial wilt is not a problem.	Very hardy.
Ranger.....	Northern Great Plains and eastward.	Very hardy.
Sonora.....	Deep South and Southwest.....	Nonhardy.
Vernal.....	Northern States.....	Very hardy.

Department of Agriculture. It was released jointly by these agencies and the agricultural experiment stations of Arizona and California in 1957.

Moapa is highly resistant to the spotted alfalfa aphid. It also has some resistance to bacterial wilt—

it is more resistant than African but less resistant than Ranger. It is similar to African in growth characteristics. Like African it grows late in the fall and early in the spring. It recovers quickly after cutting.

Narragansett.—This variety was

developed by the Rhode Island Agricultural Experiment Station and named in 1946.

The plants are vigorous and vary from prostrate to upright in habit of growth. Narragansett has wide crowns and dark-green foliage. Flowers are predominantly blue, but color ranges from yellow to purple; many flowers have a greenish-blue shade. The variety is very susceptible to bacterial wilt.

Ranger.—Ranger was developed by the Nebraska Agricultural Experiment Station and the U.S. Department of Agriculture and was released in 1942.

Ranger is resistant to bacterial wilt and is a good forage and seed producer. It recovers more quickly after cutting than Ladak or Cosack—about as quickly as Grimm. Ranger is somewhat susceptible to leaf spot diseases.

Plants vary in habit of growth—some are upright; others are semi-upright. Flower color varies.

Sonora.—Sonora is a spotted-aphid resistant variety developed by the Southwest Workers Group. This

group consists of personnel from the experiment stations of Arizona, California, and Nevada and the U.S. Department of Agriculture. Sonora was selected from African alfalfa. It is adapted to the desert valley areas of those States where high winter forage production is important. Compared to Moapa, Sonora is superior in seedling vigor and winter yields, and does as well during the rest of the year. It is equal to Moapa in resistance to spotted aphids and less susceptible to downy mildew fungus. It is, however, somewhat less persistent than Moapa. Sonora was released in 1962.

Vernal.—Vernal was developed by the Wisconsin Agricultural Experiment Station and the U.S. Department of Agriculture and was released in 1953.

Vernal is an outstanding forage producer in the North Central States. It has fine stems, leafy, dark-green foliage, and broad crowns. It makes only a moderately rapid recovery after cutting, and goes into dormancy early in the fall. It is highly resistant to bacterial wilt, and is tolerant to leaf spot and to yellow leaf blotch.

Know your varieties. It is very important that you plant seed of a variety that is adapted to the conditions of your area.

Buying certified seed is the best assurance of obtaining seed that will produce plants with the characteristics that make a variety desirable. Certified seed is—

- True to variety name.
 - Grown from authentic planting stock.
 - Of good planting quality.
-

NEW VARIETIES

At least 13 other varieties of alfalfa developed by State agricultural experiment stations or by States in cooperation with the U.S. Department of Agriculture have been released since 1958. The varieties are Teton, Zia, Culver, Chero-

Variety recommendations are not given in this publication. Variety recommendations for each State may be obtained from your State agricultural experiment station.

kee, Uinta, Saranac, Ladak 65, Travois, Caliverde 65, Mark II, Mesa-Sirsa, Washoe, and Delta.

Several new varieties also have been developed recently by commercial firms. Those that had received favorable review by the National Certified Alfalfa Variety Review Board before 1966 were 525, Progress, WL 202, Norseman, Apex, Scout, and Stride. No varieties are available that have been bred for resistance to the alfalfa weevil, a pest that has become troublesome in recent years in alfalfa production.

Apex.—Apex was developed by W. R. Grace & Co., Rudy-Patrick Seed Division, from plants of Flemish origin. It was first offered for sale in 1966. Apex has an area of adaptation similar to Du Puits and Alfa but has more resistance to bacterial wilt and pea aphids.

Caliverde 65.—Caliverde 65 was developed by the California Agricultural Experiment Station. It is similar to Caliverde but has resistance to the spotted alfalfa aphid and tolerance to the stem nematode. In resistance to leafspot diseases, the new variety ranks close to Caliverde. It was released for increase in 1965.

Cherokee.—Cherokee was developed by the North Carolina Agricultural Experiment Station in co-

operation with the U.S. Department of Agriculture. It was released in 1961.

This variety yields well and has more tolerance to leafhopper yellowing and rusts than other varieties. It is also slightly more persistent. Early spring growth behavior and rapidity of recovery after cutting are intermediate between Atlantic and Du Puits. Cherokee is moderately susceptible to bacterial wilt.

This variety has moderate winter hardiness and is adapted to North Carolina and probably to neighboring States.

Culver.—Culver was developed by the Indiana Agricultural Experiment Station in cooperation with the Central Alfalfa Improvement Conference. It was released in 1959.

The variety has enough resistance to the meadow spittlebug to perform well under normal infestation without the protection of insecticides; in epidemic infestations an insecticide should be used, however. This variety is resistant to bacterial wilt. Culver also has some resistance to the potato leafhopper and the spotted alfalfa aphid.

Culver is winterhardy.

Delta.—Delta was released in 1965 by the U.S. Department of Agriculture and Mississippi Agricultural Experiment Station for the lower Mississippi Valley. Delta persists better in that area than other varieties. The new variety has tolerance to root and crown rots, leaf-

spot diseases, and leafhopper yellowing.

525.—The variety 525 was developed by the Arnold-Thomas Seed Service and Pioneer Hi-Bred Corn Co. Seed was first offered to growers in 1963. It was selected from Vernal for bloom, seed, and growth characteristics. Some of the parental clones are resistant to the spotted alfalfa aphid, and nearly all of them are resistant to bacterial wilt. Reaction of the variety to the potato leafhopper is similar to that of Vernal. The area of adaptation of 525 is similar to that of Ranger and Vernal.

Ladak 65.—Ladak 65 is a new variety consisting of 49 parent clones from selected Ladak. It was released by the Montana Agricultural Experiment Station in 1964. Ladak 65 is adapted to dryland haying areas and to irrigated areas where two hay cuttings are made. Its flower color is like Ladak, but it is more resistant to bacterial wilt than Ladak.

Mark II.—Mark II was released in 1965 by the Agricultural Experiment Station of Cornell University and was developed from high seed setting plants of Narragansett selected in Wyoming and California. It yields forage equal to Narragansett. The new variety is adapted to the Northeast, in the same area and uses as Narragansett.

Mesa-Sirsa.—Mesa-Sirsa is a nondormant, winter-tender synthetic variety developed by the Arizona Agricultural Experiment Station and the U.S. Department of Agri-

culture. The new variety, released in 1965, is adapted to the lower desert valley areas of the Southwest where the African, Moapa, and Sonora varieties are grown. In these areas, winter forage and stands of 2 to 3 years are desired. It appears to be more resistant to mosaic and downy mildew than Sonora and produces more midwinter growth than Moapa.

Norseman.—Norseman was selected for winter hardiness, uniformity of recovery, growth habit, and resistance to bacterial wilt from Ladak by Barzan of Minneapolis, Inc. Primary use is for hay and/or grazing and for long term rotation in areas where bacterial wilt and winter-kill limit the use of other varieties.

Progress.—Progress was developed by Caladino Farm Seeds, Inc. Seed was first offered for sale in 1963. The parent clones were selected from the variety Vernal on the basis of seed and forage characteristics. Progress has a much lower percentage of plants with yellow and yellow-green shades of flower color than Vernal. Other characteristics, such as plant height, foliage color, pubescence, leafiness and stem diameter, are similar to Vernal. Progress is wilt resistant and is adapted to the Vernal-Ranger alfalfa area.

Saranac.—Saranac was developed by the Cornell Agricultural Experiment Station from selections tracing to Du Puits, Alfa, Flamanche, and A225. It was released in 1963. Saranac is resistant to bac-

terial wilt and adapted to New York and adjacent areas where alfalfa is intensively managed for highest production. Saranac is erect and nonpubescent like Du Puits and Alfa, and it offers considerable tolerance to some leafspotting diseases.

Scout.—The parentage of Scout traces to Vernal, Narragansett, Ranger, Buffalo, Cossack, and Ladak. The variety was developed by Farmers Forage Research Cooperative. Attention was given to yield and disease resistance during its development. Scout appears to have an area of adaptation similar to that of Vernal and Ranger.

Stride.—Stride has typical Flemish-type growth characteristics. The variety was developed by Caladino Farm Seeds, Inc. primarily for use as a hay crop in short rotations in the central Corn Belt States and in the Northeastern States.

Teton.—Teton was developed by the South Dakota Agricultural Experiment Station and was released in 1958.

Teton has a low, wide crown with aggressive development of rhizomes (underground stems). It is more dormant than Ladak after the first harvest and in the fall. The highest forage yield is obtained in the first cutting of the season. Teton has been more persistent than other varieties in South Dakota tests. It yields less than other varieties where droughts are not serious problems. This variety has moderate resistance to bacterial wilt, common leaf spot, and field infec-

tion caused by two *Fusarium* species causing root rots.

Teton is very winterhardy.

Travois.—Travois was developed by the South Dakota Agricultural Experiment Station from root proliferating strains tracing to Rambler and a Cossack x Semipalatinsk population. Released in 1963, it is adapted to the north-central Great Plains for rangeland interseeding and for pastures. Travois tends toward a prostrate habit of growth. Travois recovers slowly after cutting and enters dormancy early in the fall. This variety is resistant to bacterial wilt and common leafspot.

Uinta.—Uinta was developed by the U.S. Department of Agriculture and the Utah Agricultural Experiment Station and released in 1961. It is more resistant to yellow leaf blotch and downy mildew than Ranger. Like Ranger, Uinta is resistant to bacterial wilt and susceptible to attack by the spotted alfalfa aphid. It is an exceptionally high seed producer in Utah tests. Uinta is slightly less hardy than Ranger and is adapted to areas having climatic and soil conditions similar to those in northern Utah.

Washoe.—Washoe was developed by the Nevada Agricultural Experiment Station and the U.S. Department of Agriculture. It is distinguished by resistance to four pests—pea aphids, spotted alfalfa aphids, stem nematodes, and bacterial wilt. It is winter dormant with winterhardiness similar to Lahontan. Washoe is best suited to irrigated areas

of the Pacific Coast and Inter-mountain regions. It was released for seed increase in 1965.

WL 202.—WL 202 was developed by the Waterman-Loomis Co. from Vernal and Narragansett. Seed became available in 1963. Development of the variety was based on resistance to the spotted alfalfa aphid and forage and seed characteristics. Flowers are predominantly purple; 10 to 15 percent are yellow and blue variegated. WL 202 is somewhat less fall dormant than Vernal but more dormant than Cayuga. WL 202 is resistant to bacterial wilt. It is adapted to the Ranger-Vernal alfalfa area.

Zia.—Zia was developed by the New Mexico Agricultural Experiment Station and was released in 1958.

Zia is resistant to the spotted alfalfa aphid. It is slightly less winterhardy than Lahontan.

522.—This is a 20-clone synthetic developed by the Arnold-Thomas Seed Service and Pioneer Hi-Bred Corn Co. Certified seed was first offered to growers in 1966. It is similar to Vernal in its growth habit, disease reaction, and area of adaptation, but has more tolerance to the spotted alfalfa aphid. The occurrence of yellow and light flowered plants is more frequent than found in Vernal.

OTHER VARIETIES

Other varieties of U.S. origin, which are grown on a relatively small acreage, include African, Atlantic, Caliverde, Chilean 21-5, Hairy Peruvian, Indian, Meeker Baltic, Nomad, Orestan, Talent, and Williamsburg.

Varieties of foreign origin (in addition to Du Puits) include Alfa, Canadian Variegated, Cardinal, Europa, FD 100, Glacier, Orchies, Rambler, Rhizoma, and Tuna.

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